Environmental Energy Technologies Division

2015
ES&H Self-Assessment Plan

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Approved By:

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1.0 Introduction

The EETD ES&H self-assessment is a continuous process for evaluating performance. The key objectives of the ES&H self-assessment process are to monitor effectiveness of hazard controls (administrative, engineering, and Personal Protective Equipment) during performance of work and providing feedback that promotes improvement in work processes and ES&H programs.

The 2015 EETD ES&H self-assessment process is a tailored, risk-based approach to assessing safety program effectiveness. Division management (with input from the Safety Committee and Principal Investigators) has identified the hazards having potential impact on the safety of employees, protection of environment, and/or continuity of operations. This self-assessment plan describes focus areas, methodologies, and evaluation frequencies. It addresses those programs and hazards of importance to the division and, in the process, identifies findings, observations, and noteworthy practices.

2.0 2015 Self-Assessment Focus Areas

2.1 Selection of Focus Areas

A survey was conducted of Division Department Heads, Principal Investigators, and Safety Committee members on possible self-assessment topics. The survey included a "long list" of over 20 potential self-assessment topics identified by the Safety Committee. Based on the survey results, the top three topics were selected. The scope and methodology for the top three topics was further refined to ensure that one or more of the EETD departments and/or EETD buildings were included in the overall scope of this 2015 plan.

EETD has identified the following three focus areas that will be evaluated as part of the ES&H Self-Assessment process for fiscal year 2015 (FY15):

1. ***Assessment of EETD Laboratory Area Glove Box Operation and Maintenance Practices:*** Assess Building 62 and 70 laboratory areas to determine current operation and maintenance practices. Glove boxes are used to provide an inert argon atmosphere for research involving reactive metals such as lithium and sodium. Due to the hazardous nature of this activity, it is important to ensure that the gloves boxes are properly operated and maintained. The ESDR department is included in this assessment.
2. ***Assessment of EETD Chemical Spill Response Preparedness:*** Assess Buildings 62, 64, 70, and 71 technical areas to determine the level of preparedness for dealing with a minor hazardous material spill (1 gallon or less). The self-assessment scope includes availability of adequate spill cleanup supplies; spill prevention measures, and worker spill cleanup training/awareness. A number of different types of hazardous materials are used in EETD technical areas. Different types of cleanup materials and cleanup procedures may be needed depending on the hazard. The ESDR, EAEI, and BTUS departments are all included in this assessment.
3. ***Assessment of EETD Work Area Earthquake Preparedness*:** Assess EETD work areas to ensure they are adequately prepared for a large earthquake. The self-assessment scope includes a review of key research equipment for seismic bracing, work area storage practices, and worker earthquake awareness. LBNL is located next to a large earthquake fault. It is only a matter of time before a large seismic event occurs. Ensuring that EETD

is prepared for an earthquake will minimize any personnel injuries and disruptions to research.

2.2 Assessment Categories (Drivers)

2.2.1 Compliance with Institutional Requirements

EETD will evaluate the focus area of ***EETD Laboratory Area Glove Box Operation and Maintenance Practices*** for compliance with the following LBNL requirements:

- LBNL PUB-3000, Chapter 45, Chemical Hygiene and Safety Manual- "Control Procedures for Water Reactive Metals"
- LBNL PUB-3000, Chapter 41, Health and Safety Manual- "Ventilation, Hoods, and HEPA Filters"
- MBraun Glove Box Operation and Maintenance Manual
- VAC OMNI Glove Box Operation and Maintenance Manual

EETD will evaluate the focus area of ***EETD Chemical Spill Response Preparedness*** for compliance with the following LBNL requirements:

- LBNL PUB-5341, Chemical Hygiene and Safety Plan, Emergency Procedures and Equipment- "Spill Response Procedures"
- LBNL PUB-5341, Chemical Hygiene and Safety Plan, Chemical Storage Guidelines
- LBNL PUB-5341, Chemical Hygiene and Safety Plan, Control Procedures for Acids and Bases- "Emergency Procedures"
- LBNL PUB-5341, Chemical Hygiene and Safety Plan, Control Procedures for Flammable and Combustible Liquids- "Emergency Procedures"
- LBNL PUB-5341, Chemical Hygiene and Safety Plan, Control Procedures for Water Reactive Chemicals- "Emergency Procedures"

EETD will evaluate the focus area of ***EETD Work Area Earthquake Preparedness*** for compliance with the following LBNL requirements:

- LBNL Requirements and Policies Manual (RPM)- "Seismic Safety"
- LBNL PUB-3000, Health and Safety Manual, Chapter 9, Emergency Management- "Hazard Mitigation"

2.2.2 Compliance with Established Divisional Requirements

EETD will also evaluate all three-focus areas identified in Sect. 2.1 against the relevant divisional requirements specified in the EETD Integrated Safety Management Plan.

3.0 Assessment Frequency, Methodology, and Lines of Inquiry

Each self-assessment will be specific to the focus area being evaluated (though if other ES&H items are identified during the assessments, they will be referred to the Division Safety Coordinator or other appropriate entity). Each will be conducted separately during the course of the fiscal year. Upon completion of data gathering, a separate report will be prepared along with conclusions, best practices, and recommendations for improvement.

1. Self-Assessment Focus Area: EETD Laboratory Area Glove Box Operation and Maintenance Practices

1a. Persons listed below will conduct this assessment:

- EETD Safety Manager
- EHS Division representative
- Lab area representative identified by the ESDR Dept.

1b. Assessment Frequency and Schedule:

- The assessment will begin in December 2014.
- This is a one-time assessment during 2015.
- The final self-assessment report will be completed and submitted by March 30, 2015.

1c. Self-Assessment Methodology:

- The scope of this assessment project will include EETD glove boxes located in Buildings 62 and 70. The ESDR department operates these lab areas.
- A check sheet will be developed that identifies key glove box operational and maintenance criteria.
- A team of assessors will visit each lab area and use the glove box equipment check sheet as a guide in assessing the condition of each glove box. Glove boxes are located in 62-246, 62-314, 62-320, 62-342, 62-348, 62-350, 70-108, 70-123, 70-218, 70-263, 70-295, and 70-299.
- The assessment team will also survey lab personnel, area safety leads, and Principal Investigators regarding glove box use practices. A web-based survey will be considered in order to cover more of the lab population.
- The assessment team will identify recommendations for improvement and best practices. These will be communicated to EETD personnel.

1d. Lines of Inquiry:

- Are glove boxes maintained in accordance with manufacturer specifications?
- Is the atmosphere in glove boxes maintained within the prescribed oxygen and moisture limits?
- Is glove box monitoring equipment calibrated and functioning properly?
- Are there maintenance and other operational records available?
- Are glove boxes well maintained and follow good housekeeping practices?
- Are lithium, sodium, solvents, and other hazardous materials properly stored inside the glove box?
- Are personnel wearing the appropriate personal protective equipment while operating a glove box?
- Do personnel understand how to properly operate a glove box?
- What type of training is provided to glove box operators?
- Do personnel understand emergency procedures in the event of a glove box failure or spill?
- Do line management and/or safety leads monitor work activities on a regular basis to ensure glove boxes are operated properly?

2. *Self-Assessment Focus Area: EETD Chemical Spill Response Preparedness*

2a. Person(s) conducting assessment

- EETD Safety Manager
- Representative from EHS Division (chemical hygiene)
- Representative from Protective Services Division (emergency response/fire)
- Lab area representative identified by the ESDR Dept.
- Lab area representative identified by the EAEI Dept.

2b. Assessment Frequency and Schedule

- The assessment will begin April 2015.
- This is a one-time assessment during 2015.
- The final assessment report will be completed and submitted by June 30, 2015.

2c. Self-Assessment Methodology

- The assessment team will perform a walkthrough of EETD lab areas in Buildings 62, 63, 64, 70 and 71 and determine the following:
  - Types of spill cleanup materials available
  - Location spill cleanup materials are stored
  - Types of hazardous materials used in the lab area
  - Chemical storage practices (containment trays, storage cabinets, ignition sources, etc.)
  - Identify any special chemical spill cleanup conditions.
  - Lab area personnel interviews regarding chemical spill response procedures
- Principal Investigators and lab area safety leads will be surveyed to obtain their feedback on how they maintain their chemical spill cleanup supplies and their knowledge/training of chemical spill cleanup procedures. A web-based survey will be considered in order to cover more of the lab population.
- The assessment team will identify recommendations for improvement and best practices. These will be communicated to EETD personnel.

2d. Lines of Inquiry

- Are adequate spill cleanup supplies available in each lab area?
- Are the spill cleanup supplies compatible with the types of hazardous materials used?
- Are the spill cleanup supplies readily available and easy to access?
- Are lab area personnel aware of where the spill cleanup supplies are located?
- Are lab area personnel familiar with spill cleanup procedures?
- What type of chemical spill cleanup training is provided to lab area personnel?
- Are there any special personal protective equipment requirements?
- Are there any special spill cleanup equipment requirements?
- Are hazardous materials adequately stored to prevent spills or damage to containers?

3. Self-Assessment Focus Area: EETD Work Area Earthquake Preparedness

3a. Person(s) conducting assessment

- EETD Safety Manager
- EETD Building Manager (Buildings 70 and 90)
- Facilities Division representative (seismic)

3b. Assessment Frequency and Schedule

- The assessment will begin June 2015.
- This is a one-time assessment during 2015.
- The final assessment report will be completed and submitted by August 30, 2015.

3c. Self-Assessment Methodology

- The assessment team will perform a walkthrough of EETD areas in Buildings 62, 63, 64, 70, 71, and 90 to determine the following:
  - Identify key research and operational equipment that is critical to EETD business continuity.
  - Status of seismic bracing for key equipment identified.
  - Status of emergency exits from work areas and potential for blocking.
  - Chemical storage practices that could result in spills or releases during seismic activity.
  - Determine any overhead hazards that could result in injury.
  - Determine any obvious issues that could result in water releases/flooding in the event of damage from a seismic event.
  - Determine any obvious issues that could result in the long-term loss of power in the event of a seismic event.
- EETD personnel will be surveyed to obtain their feedback on how they prepare themselves and their immediate work area for earthquakes. A web-based survey will be used.
- The assessment team will identify recommendations for improvement and best practices. These will be communicated to EETD personnel.

3d. Lines of Inquiry

- What equipment is critical to EETD business continuity?
- Is the critical EETD equipment adequately secured in accordance to LBNL requirements?
- Are all equipment connected to a water sources adequately connected such that it will not cause significant leaks or flooding?
- What equipment will present a hazard or product loss in the event of power loss? Is this equipment provided with back-up power?
- Are chemical storage practices adequate for preventing spills or releases during an earthquake?
- Are area emergency exits adequately maintained and free of items that could block it in the event of an earthquake?
- Are there any hazards associated with overhead and shelf storage?
- Are EETD personnel familiar with LBNL earthquake procedures?
- Are EETD personnel aware of how to properly secure equipment and where to get needed materials for securing equipment?
- Are there any issues that prevent or discourage personnel from properly securing equipment?